

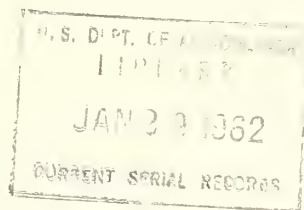
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Evaluation of Promotional Materials on

HOME DELIVERY MILK ROUTES

CUMBERLAND, MD.

PREFACE

This report is part of a research effort to evaluate the effects of merchandising and promotional innovations on sales, with the object of indicating practices that may strengthen the demand for farm products. This study is an appraisal of the effect of various promotional materials furnished customers on home delivery routes on sales of selected dairy items in one test market, Cumberland, Md.

Appreciation is expressed to the American Dairy Association for providing the materials for testing and to the Milk Industry Foundation for its assistance in securing the cooperation of local dairies, the Queen City Dairy, Potomac Farms Quality Dairy, and Farmers Dairy, all of Cumberland, Maryland, whose cooperation made this study possible. Special thanks go to Mr. Marvin Simpson, Sales Manager, Queen City Dairy, and Mr. William Ruppert, Sales Manager, Potomac Farms Quality Dairy.

The study was conducted in the Market Development Research Division under the general direction of George H. Goldsborough.

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EVALUATION OF PROMOTIONAL MATERIALS ON HOME DELIVERY
MILK ROUTES, CUMBERLAND, MD.

By James F. Hind and Mardy Myers,
agricultural economists,
Market Development Research Division
Agricultural Marketing Service

SUMMARY

During a 10-week period in the Cumberland, Md., area, specific types of promotional materials including a fluid milk "flyer" (reminder to buy more milk for the weekend), a cottage cheese recipe booklet, and a sour cream recipe booklet were randomly distributed at the household level. Analyses of sales data between May 1958, a nonpromotion base period, and the test period, September 15-November 22, 1958, for home delivery routes receiving these promotional materials and for a control group of similar routes receiving no promotional materials revealed only slight and statistically nonsignificant differences in total sales of specified dairy products. The materials tested carried a specific message and the products promoted were regular and homogenized fluid whole milk, certain fluid skim items, cottage cheese, and sour cream.

This type of promotion was considered to be of light intensity in respect to the time, effort, and cost involved relative to other promotional and merchandising practices normally employed at the various levels of distribution for these dairy products.

In addition to the sales data collected for over 9,300 households, wholesale sales data were also collected. Wholesale sales, primarily to retail food stores, were slightly higher for fluid milk products and sour cream during the experimental period than during the base period; the increase in store sales for cottage cheese was considerably greater than that of any other item. The increase in sales at the retail store level for cottage cheese over such a short time period, with constant prices, was greater than expected on the basis of sales trends for this product observed in past situations and under conditions of intensified promotion. Thus, it appears that the increase may have been due in part to the recipe booklet distributed to householders.

The results of this study have been interpreted only in terms of a relatively short time period in one market. The low cost of these promotional materials must be considered in view of their possible increased effectiveness over a longer period of time and any goodwill or public relations value that might be derived from this type of promotion. Also, these promotional materials might be more useful as a tie-in or supplemental form of advertising to major media in a well coordinated promotional program.

Further research may possibly be helpful in drawing more definitive conclusions as to the effectiveness of this specific type of promotional effort. On the basis of the results under analysis, alternative means of stimulating sales of dairy products at the home delivery level such as driver incentives, coupons, or samples, might well be given consideration.

BACKGROUND AND OBJECTIVE

The volume of fluid milk sold by milk dealers was about 52 billion pounds in the past few years, or just over 40 percent of the Nation's total milk supply. A continuing study of household purchases of fluid milk conducted by the Department of Agriculture during the 1956-58 period indicated that about 70 percent of total commercial fluid milk use was in households; the remainder was purchased by restaurants, schools, and other institutions. Furthermore, the series on householders' purchases of fluid milk showed that about half of the milk used in households, or 18 billion pounds milk equivalent, was sold on home delivery routes. Appreciable amounts of fluid milk byproducts--fluid cream, skim items, sour cream, and cottage cheese--are also left at the doorstep. Because of the importance of the home delivery outlet to the dairy industry, there is a vital interest in maintaining and increasing sales of fluid milk and fluid byproducts through this distribution channel.

Dairy producers and distributors lack information as to the effectiveness of various promotional materials that are distributed through home delivery outlets. Considerable sums of money are being spent on this promotion. Furthermore, with the total per capita consumption for dairy products apparently declining, increased efforts must be made to find more effective ways of expanding the market for these products.

This study was designed to evaluate the effectiveness of selected promotional materials distributed to homes on dairy routes on sales of fluid milk, cottage cheese, and sour cream on these routes. There are, of course, many ways of promoting at the home delivery level including samples, coupons, and various types of driver incentives. This study was limited to measuring the effect of selected flyers and recipe booklets on sales.

PROCEDURE

Treatments evaluated as to their effectiveness during the 10-week test period from September 15 to November 22, 1958 were: (I) a flyer reminding people to buy fluid milk for the weekend; (II) a recipe booklet containing 50 ways to use cottage cheese; (III) a similar recipe booklet for sour cream; (IV) a combination of all three preceding treatments; and (V) a control involving no promotional material (fig. 1). Treatments were randomly assigned to 57 dairy home delivery half routes ^{1/} which represented 9,343 households in the Cumberland, Md. area (table 1). The number of sampling units (half routes) and households was approximately equal for each treatment.

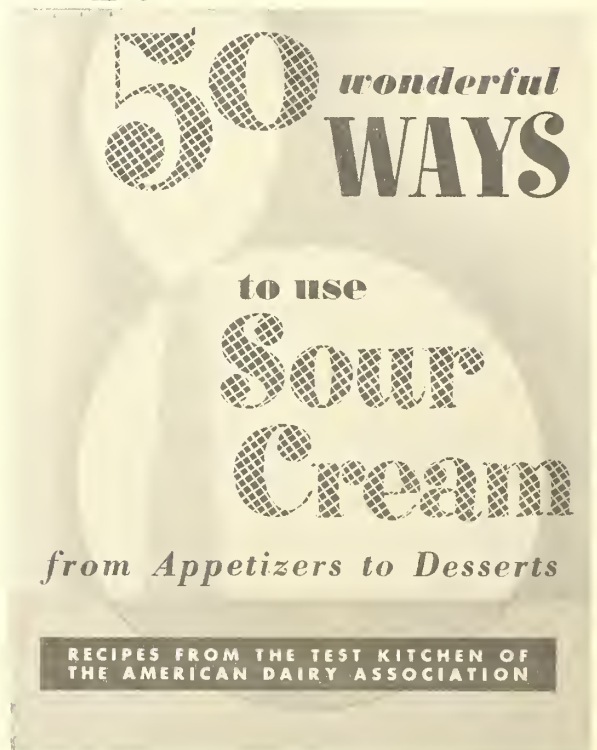
Data were obtained on these routes for a 4-week base period prior to the application of the 5 treatments specified above. The period chosen, May 1958, was considered to represent closely operating and economic conditions prevail-

^{1/} Each route was divided into two separate parts depending on day of delivery either Monday, Wednesday, and Friday, or Tuesday, Thursday and Saturday. This arrangement made it more feasible to control the distribution of the promotional materials on home delivery routes.

(Back)



T R E A T M E N T I



T R E A T M E N T I I

T R E A T M E N T III

Figure 1

Table 1.--Distribution of promotional treatments over home delivery milk routes and number of households receiving each treatment, Cumberland, Md., 1958

Treatment description	Sampling units (half routes)	Number of households	
		Base period: May 1958	Test period: Sept. 15- Nov. 22, 1958
	Number	Number	Number
I--Flyer "It Happens Every Weekend" (reminder on fluid milk) <u>1</u> /.....	12	1,823	1,836
II--Cottage cheese recipe booklet <u>2</u> /.....	12	1,818	1,852
III--Sour cream recipe booklet <u>2</u> /.....	11	1,881	1,987
IV--Combination treatments I, II & III..	11	1,751	1,869
V--No promotion material (control).....	11	1,789	1,799
Total.....	57	9,062	9,343

1/ Distributed 3 times (every other week) starting week of September 15-20, 1958.

2/ Distributed only once in first week of test, September 15-20, 1958.

ing on the home delivery routes in the September-November 1958 test period. In addition, there were only very minor changes in route construction between May and the test period.

Enumerators collected data on unit sales of regular and homogenized milk, skim, chocolate, and buttermilk, cottage cheese, and sour cream by periodic audits of daily deliveries and returns on individual home delivery half-routes of cooperating dairies covering the base and test periods. The data were converted to quarts in the case of the fluid milk products and to pounds for cottage cheese and sour cream.

In addition, prevailing home delivery prices were applied to sales data to obtain expenditures for all dairy products. The number of households served on each half-route was determined by an end-of-month count on individual routes. Wholesale sales 2/ were compiled from daily summary sheets of cooperating dairies covering all wholesale routes in the Cumberland area for the same items and same periods covered on home delivery routes. Such factors as food store prices of the dairy products, and area unemployment were relatively unchanged during the base and test periods.

2/ Primarily through retail food stores and restaurants, and excluding hospitals, schools, and other institutions.

All home delivery route salesmen involved in this study were briefed by a general letter of instruction and a personal meeting with Department representatives prior to the beginning of the test period. In addition, Department personnel were on hand at dairies to insure that promotional materials (or no material) were distributed to appropriate half-routes (i.e., sampling units).

SALES RESULTS

Home delivery routes

A comparison of sales data between the base and test periods for routes receiving various types of promotional materials revealed only slight differences in sales for the dairy products observed--fluid milk products, cottage cheese, and sour cream (table 2 and fig. 2).

For each specified dairy item, these sales differences between the base and test periods were considered for each treatment expected to stimulate sales and also for the control group of routes (Treatment V). The average difference in sales for the fluid milk items indicated that the flyer alone appeared to stimulate sales more than the control treatment or the flyer in combination with recipe booklets. For most fluid items the difference in sales for those routes exposed to the combination treatment was about the same as or less than that for routes receiving no material (table 2).

For cottage cheese, the sales data show that customers on those routes exposed only to the recipe booklet increased average purchases more between the base and test periods than customers receiving no promotional materials. In addition, the recipe booklet alone apparently stimulated sales of cottage cheese more than the combination treatment of the cottage cheese booklet, the sour cream booklet, and the flyer with a fluid milk reminder (table 3).

Average sales of sour cream were extremely low per household and no practical interpretation could be placed on sales differences for the various treatments between the base and test periods.

Average differences by treatments in total expenditures for all dairy items considered were virtually unchanged between the two time periods. Prices for and between individual items observed were the same in both time periods. Those customers exposed to a combination of materials (Treatment IV) showed the least favorable change in total expenditures, while route customers receiving the flyer only made the best showing in this respect. Of importance, those customers on routes receiving no promotional materials (Treatment V) showed a slight gain in expenditures in contrast to small declines for those on Treatments II, III, and IV routes (table 4).

Tests of statistical significance of the difference in sales and expenditures among treatments for all selected dairy items indicated that these differences were not statistically significant; ^{3/} i.e., they could have been due to chance alone. The results analyzed gave no assurance that the observed sales differences were due to the influence of the promotional materials. (See Methods of Analysis, page 12.) Under conditions of this study, considerably more

^{3/} At the 5 percent probability level.

Table 2.--Observed average sales differences between base and test period for total and individual fluid milk products, 57 dairy home delivery routes, Cumberland, Md., 1958

	Average weekly sales		Difference		Increases required for	
	per 1,000 households		between		statistical significance	
	Base	Test period:	base and		at selected probability	
Dairy product and promotional treatment	period	Sept. 15-	test		levels 2/	
	May 1958	Nov. 22,	period		.01 prob-	.05 prob-
		1958			ability	ability
	Quarts	Quarts	Quarts	Quarts	level	level
Total fluid milk products:						
No promotional materials (Treatment V-control).....	6,337	6,395	58	---	---	---
Milk flyer (Treatment I).....	5,757	5,891	134	438	328	328
Combination promotional materials (Treatment IV) 1/.....	5,471	5,394	-77	606	446	446
Regular and homogenized milk:						
No promotional materials.....	6,158	6,114	-44	---	---	---
Milk flyer.....	5,581	5,594	13	292	194	194
Combination promotional materials 1/.....	5,322	5,089	-233	422	286	286
Chocolate milk:						
No promotional materials.....	69	127	58	---	---	---
Milk flyer.....	69	163	94	168	136	136
Combination promotional materials 1/.....	77	139	62	153	125	125
Skim milk:						
No promotional materials.....	74	116	42	---	---	---
Milk flyer.....	47	91	44	173	156	156
Combination promotional materials 1/.....	40	132	92	187	169	169
Butter milk:						
No promotional materials.....	36	38	2	---	---	---
Milk flyer.....	60	43	-17	34	25	25
Combination promotional materials 1/.....	32	34	2	25	18	18

1/ Includes milk flyer, cottage cheese, and sour cream recipe booklets.

2/ Increases needed between base and test periods for promotional treatments when compared to control.

Table 3.--Observed average sales differences between base and test period for cottage cheese and sour cream, 57 dairy home delivery routes, Cumberland, Md., 1958

	Average weekly sales per 1,000 households		Difference between base and test period	Increases required for statistical significance at selected probability levels ^{2/}	
	Base period May 1958	Test period: Sept. 15- Nov. 22, 1958		.01 prob- ability level	.05 prob- ability level
	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Pounds</u>
Cottage cheese					
No promotional materials (Treatment V-control).....	116	116	---	---	---
Cottage cheese recipe booklet (Treatment II).....	102	126	24	42	29
Combination promotional materials (Treatment IV) ^{1/}	114	118	4	34	24
Sour cream ^{3/}					
No promotional materials (Treatment V).....	4	5	1	---	---
Sour cream recipe booklets (Treatment III).....	3	4	1	---	---
Combination promotional materials (Treatment IV) ^{1/}	2	4	2	---	---

^{1/} Includes milk flyer, cottage cheese, and sour cream recipe booklets.

^{2/} Increases needed between base and test periods for promotional treatments when compared to control.

^{3/} Level of sales too small to be meaningful.

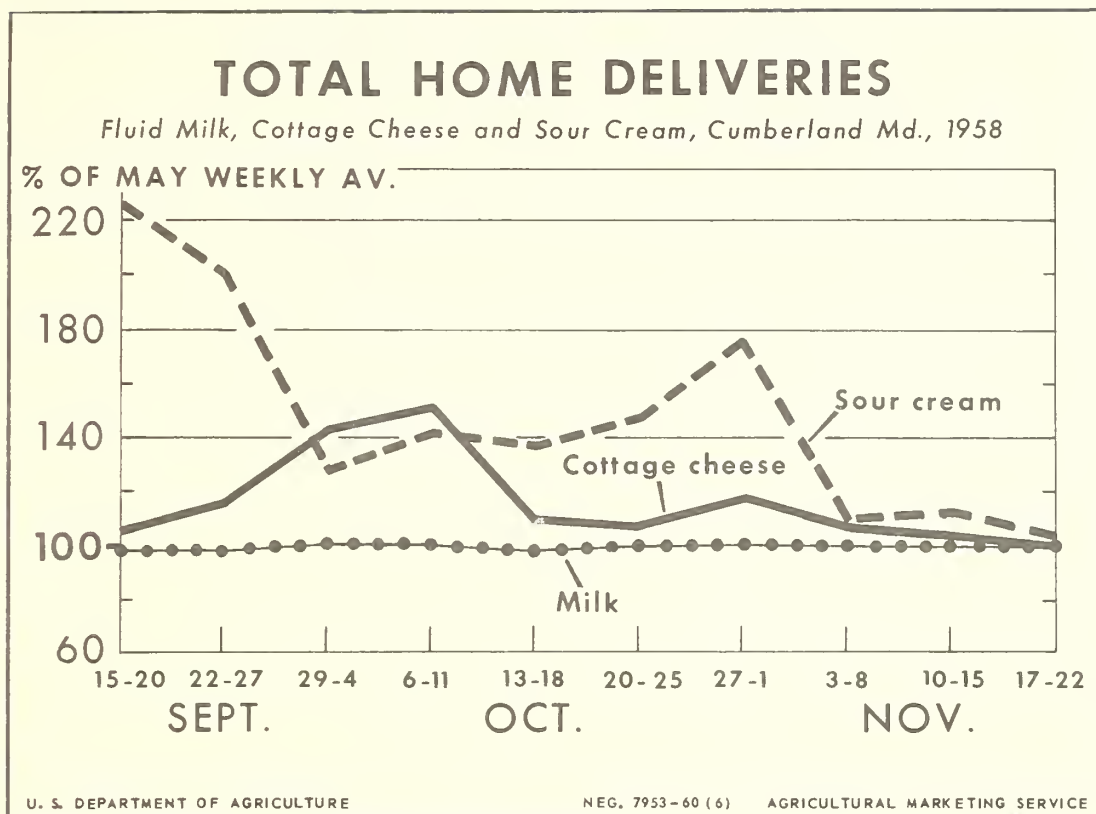


Figure 2

differences in sales for the promotional treatments than those observed were necessary in most cases to be able to attribute these differences to the effects of the promotional materials with any acceptable degree of confidence (tables 2 and 3).

It should be emphasized that this study covered a relatively short time period, and that over a longer period the recipe booklets may have a more pronounced effect on sales.

At the time of the study, the dairies cooperating in the experiment considered the distribution of promotional materials on home delivery routes a good vehicle for public relations. The relatively low cost of these materials may justify their distribution for this purpose alone. Also, these promotional materials might be more useful as a tie-in or supplemental form of advertising in major media in a well-coordinated promotional program. Further research in this area and alternative forms of promotion are indicated on the basis of the experience gained.

Wholesale sales: 4/

Weekly sales of fluid dairy products, cottage cheese, and sour cream through retail stores and restaurants in the area covered by the home delivery

4/ Excludes sales to home delivery routes, schools, hospitals, and other institutions.

Table 4.--Average weekly expenditures for selected dairy products on home delivery routes, Cumberland, Md., 1958 ^{1/}

Treatment ^{2/}	Weekly average per 1000 households		Change between base and test periods
	Base period	Test period	
	May 1958	Sep. 15-Nov. 22 1958	
	Dollars	Dollars	Percent
I.....	1,420	1,470	+3.5
II.....	1,500	1,490	-0.7
III.....	1,500	1,470	-2.0
IV.....	1,350	1,320	-2.2
V.....	1,560	1,570	+0.6
Total.....	7,330	7,320	-0.1

^{1/} Includes fluid whole and skim milk items, cottage cheese, and sour cream.

^{2/} See table 1, page 6, for description of treatments.

routes were obtained for May 1958 and September 15-November 22, 1958 (fig. 3). Dollarwise, weekly sales for all dairy products in this study were up ⁴ percent in the period when various types of promotional material distributed on home delivery routes were expected to influence household deliveries compared to the base period (table 5).

Sales for each dairy product were higher during the promotional period than in the base period, ranging from 3 percent for regular and homogenized milk to 19 percent for cottage cheese. The slight increases for the fluid milk products and sour cream could have been due to seasonal variations in sales. However, the increase in sales for cottage cheese was much greater than that shown by any other item. Furthermore, it appears this increase for cottage cheese over such a short period of time, with constant prices, was greater than one would expect on the basis of sales trends for this product observed in past situations and under conditions of intensified promotion.

The increase for cottage cheese suggests that the cottage cheese recipe booklets may have influenced consumers to buy this dairy item from other retail outlets. This hypothesis is supported by previous studies which have indicated that many home delivery customers budget their milk bill ^{5/} and possibly make

^{5/} Cassells, John M. A Study of Fluid Milk Prices. Harvard Univ. Press, 303 pp. (p. 110).

American Dairy Association. Public Attitudes and Uses of Dairy Products. A consumer study conducted by Alfred Politz Research, Inc., 1955. 30 pp. (p.4).

Table 5.--Average weekly sales through retail food stores and restaurants,
Cumberland, Md., selected periods 1958

Dairy product	Units	Average weekly sales		Increases in	
		Base period May 1958	Test period Sep. 15-Nov. 22 1958	sales between base and test periods	
				Units	Percent
Total fresh milk products...	Quarts	62,989	64,953	1,964	3.1
Total regular and homo- genized milk.....	Quarts	59,759	61,577	1,818	3.0
Total chocolate milk.....	Quarts	1,659	1,758	99	6.0
Total buttermilk.....	Quarts	1,195	1,220	25	2.1
Total skim milk.....	Quarts	376	398	22	5.9
Total cottage cheese.....	Pounds	3,697	4,399	702	19.0
Total sour cream.....	Pounds	248	260	12	4.8
Total all dairy products...	Dollars	15,183	15,800	617	4.1

additional purchases of milk and other dairy products including cottage cheese through other retail outlets.

METHOD OF ANALYSIS

Sales of selected dairy products on individual home delivery half-routes were averaged weekly to allow for the differences in the number of weeks during the base and test periods. The sales data were further standardized on a per household basis by routes for each period, since there were differences in most cases between the number of households exposed to each treatment within routes and between periods.

Individual route sales observed during the base period were paired with the corresponding route sales observed during the test period. That is, each pair consisted of sales taken as a supplementary observation before the treatments were applied, and another observation after treatments were applied at random. Thus, any two members of a pair were essentially alike in all respects, except for the treatments being applied.

This method of pairing observations (known as the randomized paired comparison design) reduced the effects of uncontrolled variations due to possible inherent differences in delivery routes or other expected normal variations due to factors other than treatment effects. Thus, the precision of experimental findings was increased, since more reliable estimates of treatment effects could be obtained.

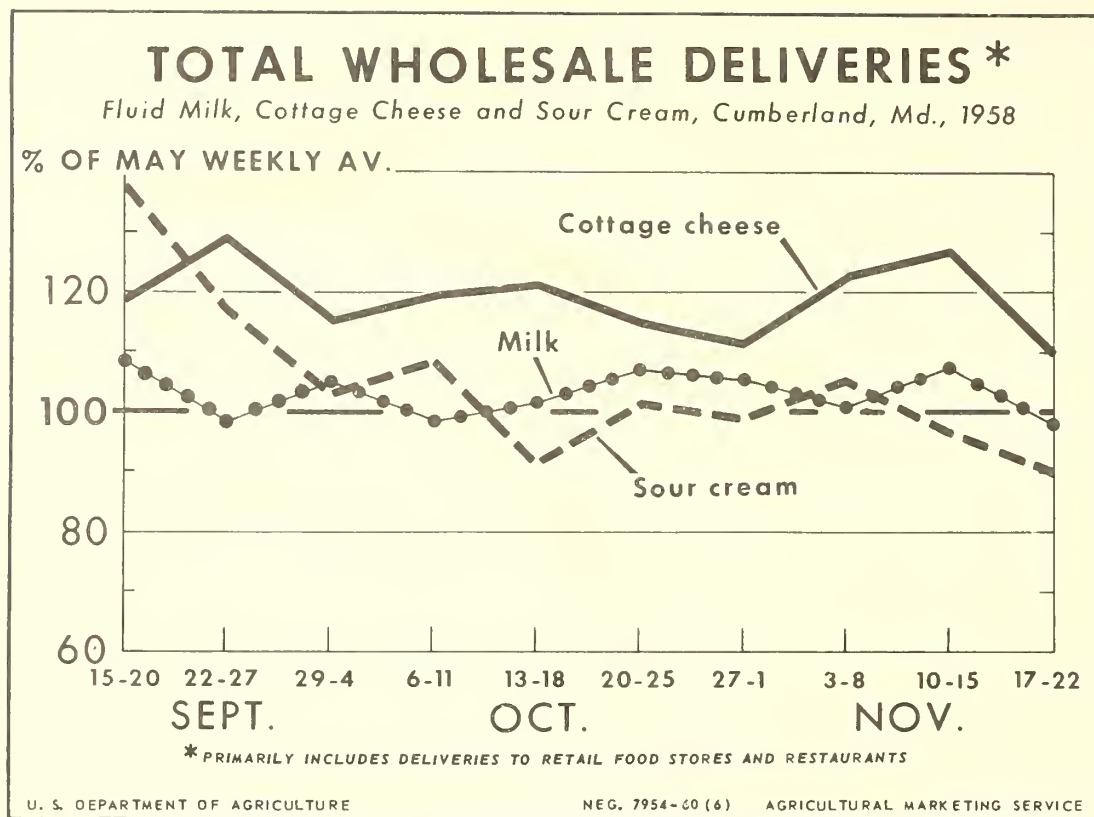


Figure 3

Effectiveness of the promotional treatments was determined by comparing observed sales differences between the base and test periods for routes receiving promotional materials with similar differences for a control group of routes receiving no promotional materials. In this respect, sales differences for the control group of routes gave an indication of the seasonality in demand. In addition, sales differences for each of the promotional treatments were compared with each other. Simple standard statistical formulas ^{6/} were used to calculate appropriate values (mean differences and standard error of mean differences) for the use of the t test to determine significant differences, if any, among mean sales differences between the base and test periods for all treatments. Complete analyses were made for sales of regular and homogenized milk, skim milk, buttermilk, and chocolate milk, individually and in the aggregate, and for sales of cottage cheese and sour cream.

^{6/} Goulden, Cyril H. *Methods of Statistical Analysis*. 2d Ed., 467 pp. 1952 (pp. 50-55).

